

REMARKS

The Examiner has rejected Claims 1, 3, and 12-14 under 35 U.S.C. §102(b), based on the contention that those claims are anticipated by U.S. Patent No. 5,995,263, issued to Tokuda et al (Tokuda '263). Applicant respectfully traverses the Examiner's rejection. To expedite the prosecution of the application, however, Applicant has deleted former Claim 1, and added Claim 15, directed to a microlithography projection printing installation which includes, *inter alia*, a gas directing device that is adjustable so as to change the area of the optical element that is exposed to the gas flow. Such a device is not taught, disclosed or suggested by any of the references cited by the Examiner, including Tokuda '263.

Tokuda '263 discloses a projection exposure apparatus that includes a system for correcting temperature-induced image defects by blowing gas onto the surface of the lens. The system includes a pair of air blowing units (32A and 32 B) that blow onto the surface of the lens, a correcting system (31) for controlling the flow rate of the gas in the air blowing units, and thermistors (30A and 30B) affixed to the lens outside the scan direction of the illuminating light for detecting a single temperature of the lens.

Tokuda '263 assumes a constant lens temperature, however. This assumption can be seen in the specification, where it states that "the thermistors 30A and 30B can accurately measure the actual temperature of the lens of the reticle 6 side" (Tokuda '263, Col. 7, Lines 8-9). The "temperature" measured is singular, assuming a constant homogenous temperature across the entire lens surface.

What has not been recognized by Tokuda '263 is that the rotationally-non-symmetric nature of the impacting light can create temperature gradients across the lens itself. Since Tokuda '263 is measuring a single temperature using the thermistors (30A and 30B), Tokuda

'263 is actually assuming a constant lens temperature across the entire surface. Since only a single lens temperature is taken in Tokuda '263, the flow rate of the gas coming from the air blowing units (32A and 32B) is only adjusted according to an averaged temperature profile.

Additionally, Tokuda '263 fails wholly to discuss adjusting the position of the air blowing units (32A and 32B). Such an omission is hardly surprising, however, given that Tokuda '263 views the lens as having a single, homogenous temperature. By assuming a single lens temperature across the entire lens surface, Tokuda '263 does not recognize the need for directed application of cooling gasses. Since portions of the lens will be at different temperatures because of the temperature gradients caused by rotationally non-symmetric light, the application of a cooling gas to then entire lens will only act to diminish the overall temperature of the lens; the temperature gradients across the lens surface will remain.

The present invention, however, is specifically directed to a device capable of adjusting to specific lens "hot spots," thus equilibrating the temperature profile across the entire lens surface.

This result is accomplished by including a "gas directing device [that is] adjustable so as to change the area of the optical element that is exposed to the gas flow." (Claim 15). The ability to change the area of impact of gas flow on the lens allows the cooling gases to be directed to particularly hot areas of the lens, or away from particularly cool areas. Such a device represents a significant and novel improvement over any prior art reference.

Additionally, the device as claimed would not be obvious given the disclosure of Tokuda '263. Since Tokuda '263 fails wholly to recognize the impact of a temperature distribution on the lens surface (as opposed to the averaged temperature of the lens), the incorporation of a gas directing device capable of changing the position of the gas impact on the lens would never be deemed necessary by one of ordinary skill in the art. Instead, Tokuda '263 actually teaches away

from spatially directed gas devices, as that reference assumes a homogenous temperature distribution across the lens. Therefore, the present Claim 15 is not taught, disclosed or suggested by any prior art reference, including Tokuda '263, either alone or combined with another reference.


Of the present claims, only Claim 15 is in independent form. The remaining claims, namely Claims 2-14, all now depend from claim 15. The Examiner's remaining rejections, namely the rejection of Claims 2, and 4-11 under 35 U.S.C. §103(a), are therefore now moot. Accordingly, Applicant submits that all claims in the application, specifically Claims 2-15, should now be in condition for allowance. Therefore, reconsideration and passage to allowance is respectfully requested.

Should anything further be required, a telephone call to the undersigned, at (312) 226-1818, is respectfully invited.

Respectfully submitted,

FACTOR & PARTNERS, LLC

Dated: May 7, 2003



Jacob D. Koering
One of Attorneys for Applicant

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 7, 2003.

Jacob D. Koering

